



Health Advisory: Safe Eating Guidelines for Fish from Trinity Lake, Lewiston Lake, Carrville Pond, Trinity River upstream from Trinity Lake, and the East Fork Trinity River (Trinity County)

a fact sheet by
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

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Why has OEHHHA developed safe eating guidelines for fish from Trinity Lake, Lewiston Lake, Carrville Pond, the Trinity River upstream from Trinity Lake, and the East Fork Trinity River?

Although virtually all fish contain detectable levels of mercury, recent studies by the U.S. Geological Survey and the State Water Resources Control Board indicate that certain species of fish in some water bodies in this region contain elevated levels of mercury and could pose a health risk to people who eat them frequently. The Office of Environmental Health Hazard Assessment (OEHHHA) has evaluated the health effects of eating fish from Trinity Lake (also known as Clair Engle Lake), Lewiston Lake, Carrville Pond, the Trinity River upstream of Trinity Lake, and the East Fork Trinity River. OEHHHA has issued a report and health advisory with safe eating guidelines for the consumption of fish from these water bodies.

The safe eating guidelines include a “best choices” table, with fish containing very low levels of mercury that can be eaten up to three times per week, and a “caution” table, with fish whose consumption should be restricted to one meal per week or less. One set of guidelines applies to women of childbearing age and children age 17 and younger, who are particularly sensitive to methylmercury (the most prevalent and toxic form of mercury in fish). A second set applies to women beyond their childbearing years and men.

Because methylmercury affects neurological development, women of childbearing age and children age 17 and younger should carefully follow guidelines for eating these fish.

Does the water in these lakes, ponds and rivers pose a hazard?

No. As explained below, mercury tends to accumulate in fish, but not in the water itself. Physical contact with the water is safe.

Why is mercury found in fish from this region?

Mercury contamination of fish is a global problem. Emissions from volcanoes and coal-burning power plants release mercury into the air, where it can be carried worldwide before being deposited in oceans, lakes, and rivers. In northern California water bodies, however, mercury is also a legacy of gold and mercury mining activities that began during the Gold Rush and continued until approximately 1960. Both gold and mercury were mined in the Trinity River watershed and some mercury remains today. The inactive Altoona Mercury Mine is located along the East Fork Trinity River and is reported to contribute significantly to the mercury content of Trinity Lake.

Gold miners used mercury to extract gold from mined materials and discharged the waste into streams, where the mercury accumulated in the sediment. Liquid mercury moves relatively slowly through river systems and accumulates in places where sediments are trapped, such as reservoirs. Bacteria convert this inorganic form of mercury into a more toxic, organic form, known as methylmercury, which fish take in from their diet. Methylmercury can accumulate in fish to concentrations many thousands of times greater than mercury levels in the surrounding water. Because methylmercury accumulates in fish slowly over time, larger fish of a species usually have higher concentrations of methylmercury than smaller fish from the same water body. Predatory fish, such as bass, generally contain more methylmercury than non-predatory fish, such as trout.

What are the human health effects of methylmercury found in these fish?

Developing fetuses and children are especially sensitive to methylmercury. Pregnant women and nursing mothers can pass on methylmercury to their fetuses or infants through the placenta and through breast milk. Excessive exposure to methylmercury can affect the nervous system in children, leading to subtle decreases in learning ability, language skills, attention, and memory. These effects may occur through adolescence as the nervous system continues to develop. For this reason, a more conservative set of guidelines applies to women of childbearing years and children up to and including age 17.

In adults, the most subtle symptoms of methylmercury toxicity are numbness and tingling sensations in the hands and feet or around the mouth. Other symptoms at higher levels of exposure could include loss of coordination and vision problems.

The levels of methylmercury found in fish from these lakes and rivers should not result in the health effects described above if the proposed guidelines are followed. The extent of health effects depends on the amount of methylmercury that people ingest from the fish that they eat and is also related to a person's body weight.

Can I still eat fish from these water bodies?

Yes. Fish are a nutritious part of your diet when eaten in moderate amounts. By following OEHHA's safe eating guidelines for eating fish from this region, you can still enjoy eating fish from these water bodies while minimizing your risk of health effects from exposure to methylmercury. Because of the increased sensitivity to methylmercury during periods of neurological development, it is particularly important for women of childbearing age and children age 17 and younger to follow the guidance provided.

The safe eating guidelines allow for women of childbearing age and children age 17 and under to eat as many as three meals a week of trout from Lewiston Lake, Carville Pond, and the Trinity River upstream of Trinity Lake. Please consult the guidelines on page 4 regarding other local fish species.

Women of childbearing age and children should not eat shark, swordfish, king mackerel, or tilefish, because those ocean species tend to have high mercury levels. This

advice is consistent with recent federal guidance for consumption of commercial and sport fish.

What about fish from the Trinity River below Lewiston Dam?

OEHHA cannot produce safe eating guidelines for the Trinity River below Lewiston Dam, because very few fish from that area have been collected and analyzed. Ocean or river-run salmon or steelhead, such as those from the Trinity River below Lewiston Dam, are usually very low in mercury and can be consumed frequently. For general information on safe consumption of sport and commercial fish, please see page 4.

Where can I get more information?

For information on mercury and other contaminants in sport fish in California, contact:

Office of Environmental Health Hazard Assessment
Pesticide and Environmental Toxicology Branch
P.O. Box 4010, Sacramento, CA 95812-4010
(916) 327-7319 or <http://www.oehha.ca.gov>

For information on mercury in commercial fish, contact:

U. S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
1 (888) SAFEFOOD or <http://www.cfsan.fda.gov>

Safe Eating Guidelines

Fish Consumption from Trinity Lake, Lewiston Lake, Carrville Pond, the Trinity River upstream of Trinity Lake, and the East Fork Trinity River

Fish are nutritious and should be part of a healthy, balanced diet. It is important, however, to choose your fish wisely. OEHHA recommends that you choose fish to eat that are low in mercury, including the following fish caught from Trinity Lake, Lewiston Lake, Carrville Pond, the Trinity River upstream of Trinity Lake, and the East Fork Trinity River.

BEST CHOICES EAT UP TO 3 TIMES PER WEEK	
Women of childbearing age and children 17 years and younger:	
All trout from Lewiston Lake, Carrville Pond, or the Trinity River upstream of Trinity Lake	
Women beyond childbearing age and men:	
All trout or white catfish from any listed site	

Because some other types of fish from these water bodies contain higher levels of mercury, OEHHA provides the following recommendations that you can follow to reduce the risks from exposure to mercury in fish.

CAUTION LIMIT CONSUMPTION TO NO MORE THAN:	
Women of childbearing age and children 17 years and younger:	
Once a Month	Bass or Chinook (King) salmon from Trinity Lake (including rivers and creeks draining into Trinity Lake) <i>or</i>
Once a Week	White catfish or trout from Trinity Lake and the East Fork Trinity River
Women beyond childbearing age and men:	
Once a Week	Bass or Chinook (King) salmon from Trinity Lake (including rivers and creeks draining into Trinity Lake)

CONTACT WITH THE WATER IS SAFE.

EAT SMALLER FISH OF LEGAL SIZE. Fish accumulate mercury as they grow.

SERVE SMALLER MEALS TO CHILDREN. Meal size is assumed to be 8 ounces for a 160-pound adult. If you weigh more or less than 160 pounds, add or subtract 1 oz to your meal size, respectively, for each 20-pound difference in body weight.

DO NOT COMBINE FISH CONSUMPTION ADVICE. If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and locations should not be combined

CONSIDER YOUR TOTAL FISH CONSUMPTION. Fish from many sources (including stores and restaurants) can contain elevated levels of mercury and other contaminants. If you eat commercial and/or sport fish with lower contaminant levels, you can safely eat more fish. The American Heart Association recommends that healthy adults eat at least two servings of fish per week. Commercial fish such as shrimp, king crab, scallops, farmed catfish, wild ocean salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury, as do the local fish in the "Best Choices" table.

FISH FROM MANY OTHER WATER BODIES ARE KNOWN OR SUSPECTED TO HAVE ELEVATED MERCURY LEVELS. Not all water bodies in California have been tested. It is recommended that, with the exception of ocean or river-run salmon or steelhead, which may be eaten more frequently, generally low mercury fish from places without published guidelines should be eaten one meal per week or less.